CLAIMS

1. A microfluidic device that comprises a microchannel structure in which there are one, two or more flow paths (**101;201a,b;301a,a',b**) all of which comprises a porous bed I (**104,204,304**) that is common for all of the flow paths, which bed exposes an immobilized reactant R that is capable of interacting with a solute S that passes through the bed, **characterized** in that at least one (**101;201a;301a,a'**) of the flow paths (**101;201a,b;301a,a',b**) comprises/comprise a second porous bed II (**105,205,305**) that is placed upstream of porous bed I (**104,204,304**) and is dummy with respect to interaction with solute S but capable of interacting with a substance DS that is present in a liquid aliquot together with solute S and is capable of disturbing the result of the interaction between solute S and said immobilized reactant R.

2. The microfluidic device of claim 1, **characterized** in that porous bed I (**104,204,304**) and porous bed II (**105,205,305**) are physically separated from each other.

3. The microfluidic device of claim 1, **characterized** in that the upstream end of porous bed I (**104,204,304**) is abutted to the downstream end of porous bed II (**105,205,305**).

4. The microfluidifc device of claim 3, **characterized** in that there is a porous membrane (**106**) between said upstream end and said downstream end.

5. The microfluidic device according to any of claims 1-4, **characterized** in that at least one of porous bed I (**104,204,304**) and porous bed II (**105,205,305**) bed is a packed bed of particles and the remaining porous bed, if any, is a porous monolithic plug.

6. The microfluidic device according to any of claims 1-5, **characterized** in that at least one of porous bed I (**104,204,304**) and porous bed II (**105,205,305**) comprises a solid phase material that is a size exclusion material.

7. The microfluidic device according to any of claims 1-6, **characterized** in that a) the disturbing substance is smaller than solute S and that at least porous bed II (**105,205,305**) in at least one of said at least one flow path comprises a solid phase material that is a size exclusion material having an exclusion limit delaying the disturbing substance from passing through porous bed II) in relation to solutes.

8. The microfluidic device according to any of claims 1-6, **characterized** in that at least one, two or more **(201b;301b)** of the remaining ones of said one, two or more flow paths **(101;201a,b;301a,a',b)** is/are devoid of porous bed II.

9. The microfluidic device according to any of claims 1-7, **characteerized** in that porous bed II in said at least one, two or more flow paths comprises/comprise an immobilised reagent R_{DS} that is capable of interacting with the disturbing substance that is present together with a solutes.

10. The microfluidic device of claims 1-8, **characterised** in that said at least one flow path is two or more flow paths and that R_{DS} in at least one of said two or more flow paths differs from R_{DS} in at least one of the remaining ones of said two flow paths.

11. A microfluidic process carried out in a flow path **(101;201a;301a,a')** of a microchannel structure of a microfluidic device and comprising transporting a liquid aliquot containing a solute S through a porous bed I **(104,204,304)** that is placed in said flow path **(101;201a;301a,a')** and exhibits an immobilized reactant R that is capable of interacting with solute S during the transport, **characterized** in comprising the steps of

(i) providing said flow path **(101;201a;301a,a')** in a form that comprises a porous bed II **(105,205,305)** that is upstream of porous bed I **(104,204,304)** and dummy with respect to interaction with solute S but capable of interacting with a disturbing substance DS,

(ii) providing a liquid aliquot containing said solute S and said disturbing substance in said flow path **(101;201a;301a,a')** in a position that is upstream of porous bed II **(105,205,305)**,

(iii) transporting the aliquot through porous bed II **(105,205,305)**, and

(iv) transporting subsequently solute S through porous bed I **(104,204,304)** to allow for the interaction with reactant R.

12. A microfluidic device in which there is microchannel structure that comprises one, two or more flow paths **(101;201a,b;301a,a',b)** each of which comprises a porous bed I **(104,204,304)** that is common for all of said flow paths and at least one of which **(101;201a;301a,a')** comprises a porous bed II **(105,205,305)** which is upstream of porous

bed I (**104,204,304**), **characterized** in that one or both of porous bed I (**104,204,304**) and porous bed II (**105,205,305**) in said at least one flow path (**101;201a;301a,a'**) comprises a solid phase material containing a generic ligand.3.

13. The microfluidic device of claim 12, **characterized** in the generic ligand in porous bed II (**105,205,305**) in one or more of said at least one flow path (**101;201a;301a,a'**) are the same as in porous bed I.

14. The microfluidic device of claim 12, **characterized** in the generic ligand in porous bed II (**105,205,305**) in one or more of said at least one flow path (**101;201a;301a,a'**) is an affinity counterpart (anti-ligand) to the ligand in porous bed I (**104,204,304**).

15. The microfluidic device of any of claims 12-13, **characterized** in that said ligand is selected amongst biotin and anti-biotins.

16. The microfluidic device of any of claims 12-15, **characterized** in that there is only one flow path (**101**) comprising both porous bed I (**104,204,304**) and porous bed II (**105,205,305**).

17. The microfluidic device of claim 16, **characterized** in that the downstream end of porous bed II (**105,205,305**) is abutted to the upstream end of porous bed I (**104,204,304**), possibly with a porous membrane between the ends.